

that the breaks were all fresh, he himself having made them, but beyond that he could say nothing about the find, except that the quartz had a very close resemblance to that of the Wealth of Nations at Reefton.

Dr. Hector also exhibited a calf of *Kogia breviceps*, a rare species of whale, which had been taken from a cow harpooned near Petone, and a fossil ammonite belonging to the Permian formation, found near Nugget Point, in the South Island, by Mr. McKay, and measuring nearly eighteen inches in diameter.

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THIRD MEETING. 18th July, 1883.

The Hon. G. R. Johnson, President, in the Chair.

New Members.—E. F. Clarke, J. S. M. Thompson, E. D. Bell.

1. "On Earth Tremors and Earthquakes," by Hon. Robert Hart.

ABSTRACT.

The author sought to establish that matter near the earth's surface is in a constant state of vibration; that matter so in a state of vibration is constantly seeking a level; that the level so sought is on no two consecutive days alike; and, incidentally, that the denudation of a portion of surface of a considerable amount of superimposed weight must tend to the elevation of the denuded surface by the pressure of the surrounding accumulations.

Sections and drawings were exhibited.

Mr. Cox was not prepared to entirely support the author's conclusions, as elevation must occur before denudation commences. As regards the origin of earthquakes, he was of opinion that to a large extent they were due to the gradual shrinkage of the solid earth, from the loss of heat by radiation—for, although we must consider the earth as a highly elastic solid body as a whole, as shown by a comparison of the theoretical and actual specific gravity of the surface rocks and the entire mass—still the earth was a solid, and the shrinkage due to loss of heat could only be attended by sudden and at times violent fractures, which are shown geologically in the faults which traverse the strata, and of which in more recent times we have actual evidence in the earthquake shocks. He did not mean to dispute that some earthquakes were due to volcanic energy, but these were of secondary origin and were of comparatively small extent, while those which had a more wide-spread character owed their origin equally with volcanic phenomena, to the shrinkage of the solid earth.

Dr. Hector considered that in discussing the causes of earthquakes and of changes of relative level, the important part played by the interstitial water that is absorbed by rocks under certain conditions, was too much lost sight of.

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FOURTH MEETING. 1st August, 1883.

The Hon. G. R. Johnson, President, in the chair.

New Member.—J. S. Rutherford.

1. "On a new Cuttle-fish, *Tremoctopus robsonianus*, obtained by C. H. Robson at Napier," by T. W. Kirk.

ABSTRACT.

*Tremoctopus robsoni*, n. sp.

This species differs from the description of the genus *Tremoctopus* as given by Adams, in that the web reaches to and extends beyond the tips of the superior arms.